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NOTES ON GEOGRAPHIC DISTRIBUTION

New records of *Astyanax pelegrini* Eigenmann, 1907 and *Triportheus pantanensis* Malabarba, 2004 (Actinopterygii: Characiformes: Characidae) for the Río Pilcomayo National Park and Ramsar Site in the province of Formosa, Argentina

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ABSTRACT: This note presents the first records of *Astyanax pelegrini* Eigenmann, 1907 and *Triportheus pantanensis* Malabarba, 2004 for the province of Formosa, Argentina from fish surveys conducted in the Río Pilcomayo National Park and Ramsar Site. In the case of *T. pantanensis*, this occurrence represents the first record of this species for Argentina.

The objective of this note is to provide information on fish occurrences recorded in the Río Pilcomayo National Park and Ramsar Site (RPNPRS) in the province of Formosa, which represent new records for this province and for Argentina. The Park is located in the eastern corner of Formosa province, northern Argentina (Figure 1A). The landscape is typical of the Great Chaco region, with a remarkable number of seasonal swamps, with poorly known fish fauna. General characteristics of Formosa's icthyofauna can be found in López and Castello (1966), López (1972), Bayley (1973), Azpelicueta and Braga (1980), Pignalberi de Hassan and Cordiviola de Yuan (1988), Menni *et al*. (1992), Azpelicueta and Yanosky (1992) and Azpelicueta (2005). Menni (2004) mentioned the presence of 143 fish species in Formosa from wetlands related to the Paraguay, Pilcomayo and Bermejo river systems. From an ichthyogeographic perspective, the National Park belongs to the Great Rivers Province (López *et al*. 2008) and is located within the Subtropical Potamic Axis Ecoregion of López *et al*. (2002).

Between January 2007 and January 2008, we conducted bimonthly surveys to assess fish biodiversity in the RPNPRS larger wetlands, using different fishing gears. For species identification we followed Ringuelet *et al*. (1967), Malabarba (2004) and Mirande *et al*. (2006), whereas osteological preparations were performed according to the technique of Taylor and Van Dyke (1985). Counts of gill-rakers on the first arch were taken from cleared and stained specimens (c&s). The repository of the material is maintained in the collection of the Instituto de Limnología "Dr. Raúl A. Ringuelet" (Institutional Code: ILPLA). Details on the material examined can be found in Appendix 1.

CHARACIFORMES

CHARACIDAE

Astyanax pelegrini Eigenmann, 1907. Figure 2.

Diagnostic features were considered consistent with the work of Mirande *et al*. (2006) on the re-description of *Astyanax correntinus* (Holmberg, 1891) and its comparison with *A. pelegrini*.

Scale rows between dorsal fin and lateral line: 12; scale rows between lateral line and anal-fin: 8; lateral line complete, perforated scales: 48; scales around caudal peduncle: 19; rows of scales along the anal fin base: 3; anal-fin rays: v, 41 (46); teeth on outer premaxillary series: 5; the anal fin origin, is located below the last third of dorsal fin; partially naked area between the supraoccipital process and dorsal fin origin; gill rakes on the first gill arch: 26; base anal fin: 40.2% in standard length (SL); distance pectoral-ventral origin: 16.3% SL; pectoral-fin length: 21.8% SL; maxilar length: 21.5% in head length (HL); upper jaw length: 34.2% HL.

Triportheus pantanensis Malabarba, 2004. Table 1, Figure 3.

Diagnostic features: depth at dorsal fin origin: 33.4-41.4 (38.0)% SL, number (n) = 23; depth at pectoral fin insertion: 33.0-44.2 (37.8)% SL, n = 23; presence of two longitudinal scales rows between the pectoral fin insertion and the ventral keel; few gill rakes on the lower limb of first gill arch: 27-31 (28), n = 11 c&s specimens; the lateral-line scales counts: 28-31 (30); the bony head length: 22.5-27.1 (24.6) % SL, n = 23; the snout to anal-fin origin distance:

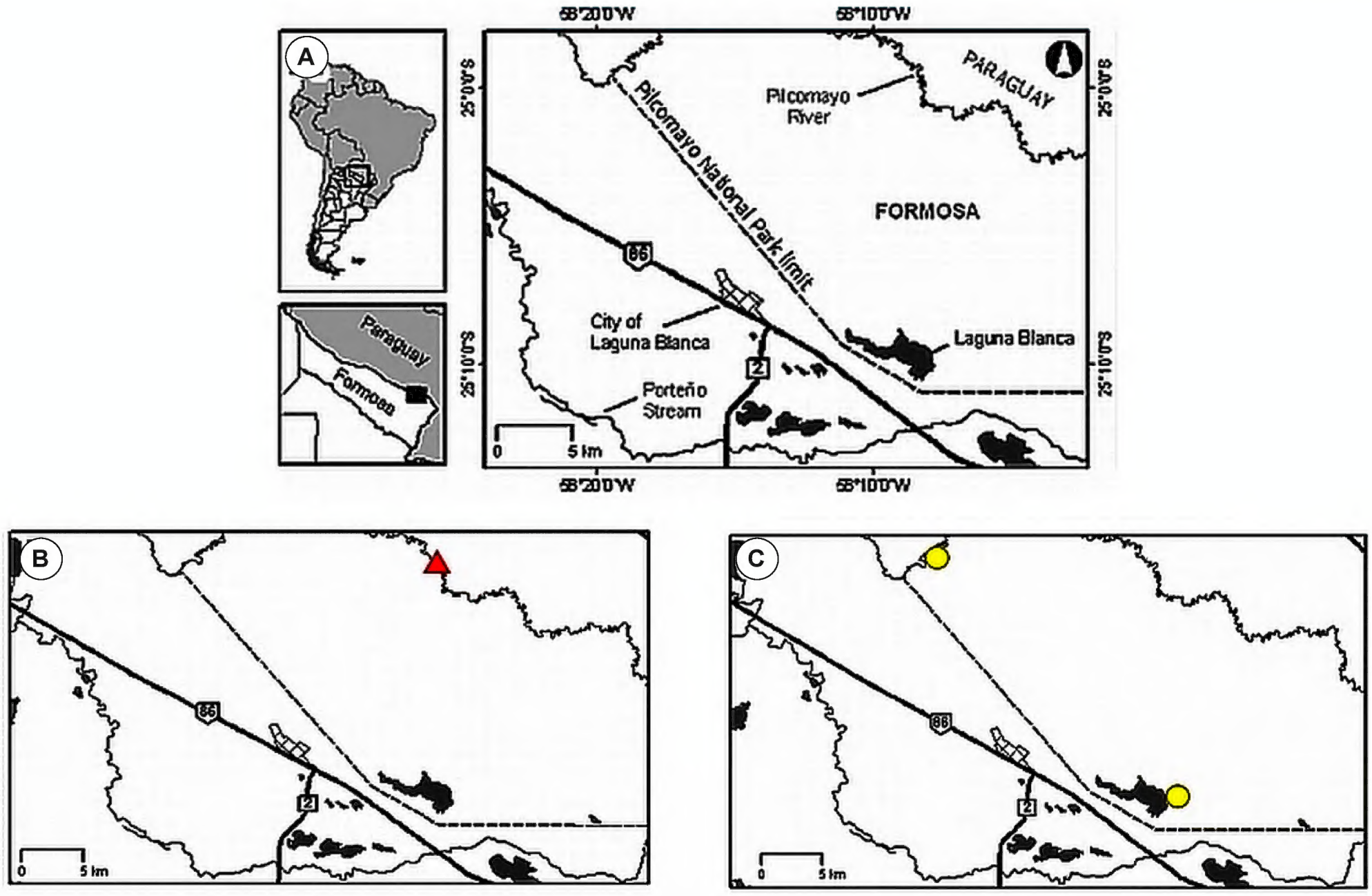

FIGURE 1. Distribution maps of species recorded: A. Study area, Río Pilcomayo National Park and Ramsar Site in Formosa province, Argentina. B. red triangles: *Astyanax pelegrini*; C. yellow circle: *Triportheus pantanensis.*

TABLE 1. Morphometric data for *Triportheus pantanensis* from Argentina compared to holotype and paratype data (taken from Malabarba 2004).

CHARACTER	LOW	HIGH	MEAN	SD	N	HOLOTYPE	PARATYPES	N
Standard length (mm) (SL)	65.2	126.4	98.6			99.5	67.7-158	31
As a percentage of SL								
Bony head length	22.5	27.1	24.6	1.2	23	26.0	22.5-27.3	31
Snout to anal-fin origin	65.4	73.8	67.9	2.2	23	70.0	66.4-74.1	31
Snout to dorsal-fin origin	59.3	64.2	61.5	1.2	23	60.6	59.3-64.6	31
Snout to pelvic-fin origin	45.4	55.3	49.4	2.2	23	51.9	49.9-66.9	30
Anal-fin base length	27.3	32.1	30.0	1.3	23	28.7	25.5-31.0	30
Caudal peduncle length	6.2	9.8	7.6	1.0	23	6.7	5.5-11.3	31
Caudal peduncle depth	10.1	11.6	10.7	0.4	23	11.0	9.2-11.1	31
Depth at dorsal-fin origin	33.4	41.4	38.0	2.0	23	36.4	34.6-42.5	31
Depth at pectoral fin	33.0	44.2	37.8	2.7	23	36.8	30.7-42.8	31
Dorsal-fin height	17.9	21.9	19.9	1.0	23	19.8	18.0-22.8	31
Pelvic-fin length	12.1	17.2	15.1	1.5	22	13.9	12.8-17.0	30
Pectoral-fin length	33.6	44.2	38.6	2.7	23	38.8	32.9-42.7	31
As a percentage of head length								
Snout length	18.8	25.9	21.5	2.0	23	21.6	18.2-25.2	31
Horizontal eye diameter	29.1	36.6	32.2	1.7	23	30.1	25.0-32.5	31
Least interorbital width	33.9	41.4	38.1	1.4	23	35.1	31.6-38.9	31
Meristic								
Gill rakers	27	31	28	1.1	11	30	26-33	29
Scales in lateral line	28	31	30	1.0	23	30	28-33	32
Scale series above lateral line	6	6	6	0.0	23	6	6	-
Scale series below lateral line	2	2	2	0.3	23	2	2	-
Scales along mid-dorsal line	10	13	12	0.8	23	-	6-13	29
Dorsal-fin rays	ii,8	ii,9	ii,9	0.4	23	ii,9	ii,9	31
Anal-fin rays	iii,24	iii,29	iii,27	1.8	23	iii,29	iii,25-30	31
Pectoral-fin rays	i,10	i,11	i,11	0.6	23	i,12	i,10-12	-
Pelvic-fin rays	i,5	i,6	i,6	0.4	23	i,6	i,6	-

65.4-73.8 (67.9)% SL, n = 23; the length of anal fin base: 27.3-32.1 (30.0)% SL, n= 23, and possession of median caudal-fin rays that extend well beyond the caudal fin margin.

As a result of these surveys, two new species records are added to the ichthyofauna of the Formosa: *A. pelegrini* (Figure 1B) and *T. pantanensis* (Figure 1C). The first one was previously reported in Chaco, Buenos Aires, and Santa Fe provinces. In turn, the occurrence of *T. pantanensis* in the RPNPRS represents the first record for Argentina and the southernmost for this species, being until now only mentioned for the Pantanal region in Mato Grosso, Brazil. These results indicate the need to gather more ichthyological information from these dynamic environments, where their hydrological regime supported by regional floods from the Pilcomayo River favors a constant rate of recolonization and exchange of species.

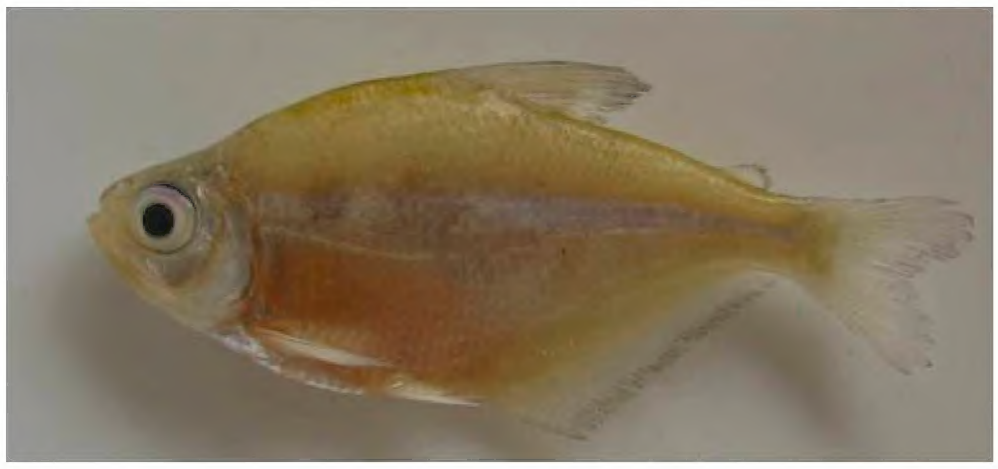

Figure 2. *Astyanax pelegrini*, ILPLA 1964, 59.9 mm SL, lower Río Pilcomayo, Pilcomayo Departament, Pilcomayo river basin, Formosa province, Argentina.

Figure 3. *Triphortheus pantanensis,* ILPLA 1969, 107.46 mm SL, Laguna Blanca, Pilcomayo Departament, Pilcomayo river basin, Formosa province, Argentina.

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Appendix 1. Museum records of species analyzed. ILPLA: Instituto de Limnología "Dr. Raúl A. Ringuelet" (CONICET-UNLP), La Plata, Buenos Aires, Argentina; MCP: Museu da Católica Pontifícia de Rio Grande do Sul, Rio Grande do Sul, Porto Alegre, Brazil, and MLP: Museo de La Plata, La Plata, Buenos Aires, Argentina and USNM: Smithsonian National Museum of Natural History, Washington, D. C, USA.

Astyanax pelegrini: **Argentina**: ILPLA 1964, 59.9 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, lower Río Pilcomayo, 25°00'53" S, 58°07'46" W, Col. C. Baigún, P. Minotti y F. Brancolini, 11/10/07; *Triportheus pantanensis*: Argentina: ILPLA 1966, 6, 3 c&s, 89.8-118.7 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, Laguna Blanca, 25°10'16" S, 58°07'53" W, Col. C. Baigún *et al.*, 19/02/07, ILPLA 1967, 12, 4 c&s, 50.1-75.6 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, Laguna Blanca in outlet of Estero Poi, 25°08'57" S, 58°10'58" W, Col. C. Baigún *et al.*, 19/02/07, ILPLA 1968, 6, 3 c&s, 49.3-75.1 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, South Pilcomayo River, 24°58'46" S, 58°18'11" W, Col. C. Baigún *et al.*, 05/07/07, ILPLA 1969, 3, 1 c&s, 107.5-122 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, Laguna Blanca, 25°10'17.33" S, 58°07'51.24" W, Col. C. Baigún *et al.*, 14/08/07, ILPLA 1970, 6, 1 c&s, 108.6-126.4 mm SL, Formosa province, Pilcomayo Department, Pilcomayo river basin, Laguna Blanca, 25°10'02.5" S, 58°07'50.7" W, Col. C. Baigún *et al.*, 10/10/07; **Paraguay**: USNM 181682, 4 paratypes radiographs, 100.3-124.0 mm SL, Asunción Bay, Paraguay River, near Asunción, 25°15' S, 57°40' W, Col. C.J.D. Brown, 10/01/57, USNM 181689, 2 paratypes photographs and radiographs, 133.9-154.0 mm SL, Lago Ypacaray near San Bernardino, 25°28' S, 57°33' W, Col. C.J.D. Brown, 11/10/56; **Brasil**: MCP 35824, 2, 73.8-78.9 mm SL, from América do Sul, Brasil, Mato Grosso, Paraguay, Paraguay River in Cáceres and surrounding areas, 16°03'00" S, 57°42'00" W, Col. R.E. Reis *et al.*, 11/08/91; *Triportheus nematurus* (Kner, 1858): **Argentina**: ILPLA 1971, 2 c&s, 93.8-97.6 mm SL, Buenos Aires, second section of San Fernando delta, Cangrejo Stream, 34°17'35.3" S, 58°32'03.7" W, Col. F. Brancolini, A. Brancolini and M.C. Nouzaret, 5/05/07.